IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in

the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A recording apparatus for recording streaming data on an

information recording medium, the recording apparatus comprising:

detecting means for detecting a boundary between data sets that successively

constitute the streaming data;

accumulating means for accumulating the streaming data; and

recording means for recording the streaming data accumulated in the

accumulating means in a unit recording area of the information recording medium when:

the amount of the streaming data accumulated in the accumulating means

has reached a capacity of the unit recording area of the information recording medium, and

the boundary of the data sets is detected by the detecting means, regardless

of the amount of the streaming data accumulated in the accumulating means, and

wherein the recording means:

identifies a start boundary at a beginning of the unit recording area and an end

boundary at the end of the unit recording area by determining each time the stream data

coincides to a complete data set if the complete data corresponds to a whole area of the unit

recording area; and

adding padding data is added subsequent to the streaming data accumulated in the

accumulating means until the total amount of data reaches the capacity of the unit recording area

of the information recording medium, and

wherein the recording means records resulting data in the unit recording area of

the information recording medium,

wherein the boundary of each data set is recorded in a position coinciding with a

cluster boundary, thereby,

wherein, when the data set is deleted from the unit recording area of the

information recording medium, the recording means deletes the added padding data, and all the

padding data that was added is deleted and

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

2. (Original) A recording apparatus according to claim 1, wherein the streaming

data is an MPEG stream and the data sets are groups of pictures.

3. (Original) A recording apparatus according to claim 1, wherein the unit

recording area of the information recording medium is a cluster.

4. (Currently Amended) A recording method for a recording apparatus for

recording streaming data on an information recording medium, the recording method

comprising:

a detecting step of detecting a boundary between data sets that successively

constitute the streaming data;

an accumulating step of accumulating the streaming data;

a recording step of recording the streaming data accumulated in the accumulating

step in a unit recording area of the information recording medium when:

the amount of the streaming data accumulated in the accumulating step

has reached a capacity of the unit recording area of the information recording medium, and

the boundary of the data sets is detected in the detecting step, regardless of

the amount of the streaming data accumulated in the accumulating step;

identifying a start boundary at a beginning of the unit recording area and an end

boundary at the end of the unit recording area;

determining each time the stream data coincides to a complete data set if the

complete data corresponds to a whole area of the unit recording area;

adding padding data subsequently to the streaming data accumulated in the

accumulating step until the total amount of data reaches the capacity of the unit recording area of

the information recording medium; and

recording resulting data in the unit recording area of the information recording

medium,

wherein the boundary of each data set is recorded in a position coinciding with a

cluster boundary, ~~thereby,~~

<u>wherein,</u> when the data set is deleted from the unit recording area of the

information recording medium, <u>a second recording step deletes the added padding data, and</u> ~~all~~

~~the padding data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

5. (Currently Amended) A computer readable recording medium having recorded

thereon a computer-readable program for a recording apparatus for recording streaming data on

an information recording medium, comprising:

program code for detecting a boundary between data sets that successively

constitute the streaming data;

program code for accumulating the streaming data;

program code for recording the streaming data accumulated in the accumulating

step in a unit recording area of the information recording medium when the amount of the

streaming data accumulated in the accumulating step has reached a capacity of the unit recording

area of the information recording medium; and

program code for recording the streaming data accumulated in the accumulating

step in the unit recording area of the information recording medium, when the boundary of the

data sets is detected in the detecting step, regardless of the amount of the streaming data

accumulated in the accumulating step,

program code for identifying a start boundary at a beginning of the unit recording

area and an end boundary at the end of the unit recording area;

program code for determining each time the stream data coincides to a complete

data set if the complete data corresponds to a whole area of the unit recording area; and

program code for adding padding data subsequently to the streaming data

accumulated in the accumulating step until the total amount of data reaches the capacity of the

unit recording area of the information recording medium; and

program code for recording resulting data in the unit recording area of the

information recording medium,

wherein the boundary of each data set is recorded in a position coinciding with a

cluster boundary, ~~thereby,~~

wherein, when the data set is deleted from the unit recording area of the

information recording medium, program code for deleting padding data deletes the added

padding data, and ~~all the padding data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

6. (Currently Amended) A computer readable medium storing a computer

program for allowing a computer that controls a recording apparatus for recording streaming data

on an information recording medium to execute processing comprising:

a detecting step of detecting a boundary between data sets that successively

constitute the streaming data;

an accumulating step of accumulating the streaming data; and

a recording step of recording the streaming data accumulated in the accumulating

step in a unit recording area of the information recording medium,

when the amount of the streaming data accumulated in the accumulating

step has reached a capacity of the unit recording area of the information recording medium; and

when the boundary of the data sets is detected in the detecting step,

regardless of the amount of the streaming data accumulated in the accumulating step;

identifying a start boundary at a beginning of the unit recording area and an end

boundary at the end of the unit recording area;

determining each time the stream data coincides to a complete data set if the

complete data corresponds to a whole area of the unit recording area;

adding padding data subsequently to the streaming data accumulated in the

accumulating step until the total amount of data reaches the capacity of the unit recording area of

the information recording medium; and

recording resulting data in the unit recording area of the information recording

medium,

wherein the boundary of each data set is recorded in a position coinciding with a

cluster boundary, ~~thereby,~~

wherein, when the data set is deleted from the unit recording area of the

information recording medium, a deleting step deletes the added padding data ~~all the padding~~

~~data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

7. (Currently Amended) A recording apparatus for recording streaming data on an

information recording medium, the recording medium comprising:

generating means for generating the streaming data by encoding an information

signal based on a predetermined encoding scheme so that the data amount of data sets that

successively constitute the streaming data will be an integer multiple of a capacity of a unit

recording area of the information recording medium; and

recording means for recording the streaming data generated by the generating

means on the information recording medium,

wherein recording is initiated when the amount of the streaming data

accumulated has reached a capacity of the unit recording area of the information recording

medium,

wherein recording is initiated when the boundary of the data sets is

detected regardless of the amount of the streaming data accumulated, and

wherein the recording has determines a start boundary at a beginning of

the unit recording area and an end boundary at the end of the unit recording area by:

determining each time the stream data coincides to a complete data set if

the complete data corresponds to a whole area of the unit recording area; and

adding padding data subsequently to the streaming data accumulated until

the total amount of data reaches the capacity of the unit recording area of the information

recording medium; and , and

recording resulting data in the unit recording area of the information

recording medium, and

wherein a boundary of a data set is recorded in a position coinciding with a cluster

boundary, thereby,

wherein, when the data set is deleted from the unit recording area of the

information recording medium, the recording means deletes the added padding data, and all

padding data that was added is deleted and

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

8. (Original) A recording apparatus according to claim 7, wherein the information

signal is a video signal, the streaming data is an MPEG stream, and the data sets are groups of

pictures.

9. (Original) A recording apparatus according to claim 7, wherein the unit

recording area of the information recording medium is a cluster.

10. (Currently Amended) A recording method for a recording apparatus for

recording streaming data on an information recording medium, the recording method

comprising:

a generating step of generating the streaming data by encoding an information

signal based on a predetermined encoding scheme so that the data amount of data sets that

successively constitute the streaming data will be an integer multiple of a capacity of a unit

recording area of the information recording medium; and

a recording step of recording the streaming data generated in the generating step

on the information recording medium,

wherein recording is initiated when the amount of the streaming data

accumulated has reached a capacity of the unit recording area of the information recording

medium, and

wherein recording is initiated when the boundary of the data sets is detected, regardless of the amount of the streaming data accumulated,

an identifying step of identifying a start boundary at a beginning of the unit recording area and an end boundary at the end of the unit recording area;

a determining step of determining each time the stream data coincides to a complete data set if the complete data corresponds to a whole area of the unit recording area;

a padding step of adding padding data subsequently to the streaming data accumulated in the accumulating step until the total amount of data reaches the capacity of the unit recording area of the information recording medium; and

a recording step of recording resulting data in the unit recording area of the information recording medium, and

wherein a boundary of a data set is recorded in a position coinciding with a cluster boundary, ~~thereby,~~

wherein, when the data set is deleted from the unit recording area of the information recording medium, a deleting step deletes the added padding data, and ~~all padding data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data set remains.

11. (Currently Amended) A computer readable recording medium having recorded thereon a computer-readable program for a recording apparatus for recording streaming data on an information recording medium, the program comprising:

a generating step of generating the streaming data by encoding an information

signal based on a predetermined encoding scheme so that the data amount of data sets that

successively constitute the streaming data will be an integer multiple of a capacity of a unit

recording area of the information recording medium; and

a recording step of recording the streaming data generated in the generating step

on the information recording medium,

wherein recording is initiated when the amount of the streaming data

accumulated has reached a capacity of the unit recording area of the information recording

medium; and

wherein recording is initiated when the boundary of the data sets is

detected, regardless of the amount of the streaming data accumulated in the accumulating step,

an identifying step of identifying the recording start boundary at a beginning of

the unit recording area and an end boundary at the end of the unit recording area;

a determining step of determining each time the stream data coincides to a

complete data set if the complete data corresponds to a whole area of the unit recording area;

a padding step of adding padding data subsequently to the streaming data

accumulated in the accumulating step until the total amount of data reaches the capacity of the

unit recording area of the information recording medium, and

a first recording step of recording resulting data in the unit recording area of the

information recording medium, and

a second recording step of recording a boundary of a data set in a position

coinciding with a cluster boundary, thereby,

wherein, when the data set is deleted from the unit recording area of the

information recording medium, a deleting step deletes the added padding data, and ~~all padding~~

~~data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data

set remains.

12. (Currently Amended) A computer readable medium storing a computer

program for allowing a computer that controls a recording apparatus for recording streaming data

on an information recording medium to execute processing comprising:

a generating step of generating the streaming data by encoding an information

signal based on a predetermined encoding scheme so that the data amount of data sets that

successively constitute the streaming data will be an integer multiple of a capacity of a unit

recording area of the information recording medium; and

a recording step of recording the streaming data generated in the generating step

on the information recording medium,

wherein recording is initiated when the amount of the streaming data

accumulated has reached a capacity of the unit recording area of the information recording

medium; and

wherein recording is initiated when the boundary of the data sets is

detected, regardless of the amount of the streaming data accumulated in the accumulating step,

an identifying step of identifying a start boundary at a beginning of the unit

recording area and an end boundary at the end of the unit recording area;

a determining step of determining each time the stream data coincides to a

complete data set if the complete data corresponds to a whole area of the unit recording area;

a padding step of adding padding data subsequently to the streaming data

accumulated until the total amount of data reaches the capacity of the unit recording area of the

information recording medium; and

a first recording step of recording resulting data in the unit recording area of the

information recording medium; and

a second recording step of recording a boundary of a data set in a position

coinciding with a cluster boundary, ~~thereby~~,

wherein, when the data set is deleted from the unit recording area of the

information recording medium, a deleting step deletes the added padding data, and ~~all padding~~

~~data that was added is deleted and~~

wherein streaming data in a next unit recording area coinciding with a next data

set remains.